P617 MOLECULAR TYPING OF *MYCOPLASMA GENITALIUM* SHOWS A DIVERSE EPIDEMIC WITH LIMITED AZITHROMYCIN RESISTANCE IN SOUTH AFRICA

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Background The occurrence of azithromycin resistance in *M. genitalium* infection is unknown in Africa, where diagnostic resources are limited and STIs are managed syndromically. This study aims to gain insight in the molecular epidemiology including antimicrobial resistance of *M. genitalium* infection in South Africa.
Methods We collected 87 *M. genitalium*-positive samples obtained from participants in three study cohorts: HIV-infected pregnant women residing in townships in Pretoria (n=44), men and women accessing primary healthcare services in rural Mopani District (n=32), and men accessing sexual health services in Johannesburg (n=11). Molecular typing was performed using single nucleotide polymorphism (SNP) analysis of the MG191 gene to determine sequence type (ST) combined with variable-number of tandem-repeat (VNTR) assessment of the MG309 gene. Molecular detection of macrolide resistance-associated mutations in the 23S rRNA gene was done and, if detected, subsequent sequencing of the *parC* and *gyrA* genes for quinolone resistance.
Results SNP analysis was successful in 22 specimens and showed 17 different STs (9 known and 8 new STs). VNTR assessment was successful for 36 specimens and showed variation in the number of repeat, ranging from 8 to 19; four strains had the same number of repeats (11). There was no geographic clustering of specific STs or number of repeats observed. Azithromycin resistance was detected in only 1/87 specimens (1.1%); a mutation in the *parC* gene associated with quinolone resistance was also detected in this case. This specific strain was a unique novel ST, but with similar tandem repeats, compared to the drug-susceptible stains.
Conclusion This study shows a well-established, genetically diverse epidemic of *M. genitalium* infection in South Africa. The prevalence of azithromycin resistance was low, which is probably the result of the relatively recent introduction of azithromycin in the syndromic management guidelines. Nevertheless, introduction of diagnostics and surveillance of resistance is urgently warranted.
Disclosure No significant relationships.

P618 *MYCOPLASMA GENITALIUM* TESTING IN CLINICAL PRACTICE: PREVALENCE AND RESISTANCE RATES IN A SOUTH LONDON SEXUAL HEALTH CLINIC

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Background The British Association of Sexual Health and HIV recommends testing for *Mycoplasma genitalium* (MG) in clinically indicated conditions (CIC) (non-gonococcal urethritis (NGU); epididymitis; pelvic inflammatory disease (PID); contacts of MG; test of cure (TOC)). MG testing was implemented in September 2018 in a large urban sexual health service. We aimed to assess the prevalence and antimicrobial resistance of MG in this clinic population after a 6-weeks embedding period.
Methods All patients diagnosed with a CIC and tested for MG between 28/10/2018-18/12/2018 were included. MG testing was performed using Aptima *Mycoplasma genitalium* assay (AMG; Hologic); confirmatory testing and resistance testing for macrolides and fluoroquinolones was performed at the Public Health England reference laboratory.
Results The 371 individuals tested for MG were predominantly male (77%), heterosexual (78%) and Caucasian (46%) and 85% tested per guidance. 18% were positive for MG. 38% (25/65) were positive using AMG but had negative confirmatory test and no resistance results. 18% with MG were co-infected with another sexually transmitted infection (9 chlamydia; 2 gonorrhoea; 2 trichomonas). The prevalence of MG by testing indication was: contacts of MG (33%, 11/33), TOC (25%, 3/12), NGU/epididymitis (17%, 38/229), PID/cervicitis (11%, 5/44) and inappropriately tested (14%, 7/51). 38% of MG had resistance; 34% macrolides; 8% fluoroquinolones; 3% both. Macrolide resistance was identified on the 23SrRNA gene at loci A2058G (45%) and A209G (55%), all fluoroquinolone was on the parC gene.
Conclusion We report a high MG prevalence in this population with high rates of resistance, the majority of which is macrolide. We recommend resistance guided therapy in view of high macrolide and fluoroquinolone resistance. Positive RNA detection with negative DNA detection is concerning and may either represent very low bacterial loads, a biological false positive result of AMG or a false negative result of the confirmatory test.
Disclosure No significant relationships.

P619 MACROLIDE AND QUINOLONE RESISTANCE IN *MYCOPLASMA GENITALIUM*: DATA FROM A UK SEXUAL HEALTH CLINIC

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Background Rates of macrolide resistance (MR) in *Mycoplasma genitalium* (Mgen) globally remain alarmingly high (30-100%) and quinolone resistance (QR) is now an increasing concern. In the UK, testing for Mgen is in its infancy and data for MR and QR are therefore lacking. The recent publication of guidelines by British Association for Sexual Health and HIV (BASHH) delivers hope that testing and experience in managing Mgen infection will increase. We aimed to measure infection rates and to determine the prevalence of MR and QR in men with urethritis and women with pelvic inflammatory disease (PID) attending a UK sexual health clinic.

Methods Men with urethritis, women with PID and current sexual partners of Mgen-infected patients were tested for Mgen (BASHH guidelines). The samples were tested using the Fast-Track Urethritis Basic assay for detection. Positive samples were tested by the SpeeDx ResistancePlus® MG assay to detect the presence of MR-mutations and the SpeeDx MG +ParC (beta) assay determined QR-mutations.
Results Forty-five patients tested positive for Mgen—53% of cases were men with urethritis; 29% were women with PID and 18% were asymptomatic patients. The prevalence of Mgen in men with urethritis was 18%, and in women with PID was also 18%. The prevalence of MR was 69% (31/45). The prevalence of QR was 7% (3/45); all 3 patients also had MR.
Conclusion These are the first UK data for MR and QR in Mgen from attendees to clinic at a single centre. MR was higher than previously reported in the UK and Europe. Reassuringly, QR is still low—however, this is likely to rise with increasing quinolone use. Patients with dual-class resistance pose a significant challenge as subsequent treatment options are limited. All testing for Mgen should include the detection of resistance-associated mutations so that the most appropriate agent can be used.
Disclosure No significant relationships.

P620 INCLUSIVITY, EXCLUSIVITY, STABILITY AND PROSPECTIVE TESTING OF TWO REAL-TIME PCR ASSAYS FOR *MYCOPLASMA GENITALIUM*

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Background *Mycoplasma genitalium* (MG) is an emerging sexually transmitted infection. It has been associated with cervicitis and PID in women and urethritis and persistent NGU in men.
Methods We evaluated two MG qPCRs, 16S rRNA and pdhD. The limit of detection (LOD) for the 16S rRNA and pdhD assays were determined with 11 MG strains. Inclusivity/exclusivity testing was performed with 11 MG strains and 43 non-MG strains. Stability testing was performed with mock vaginal and urine samples stored at +4°C and 25°C at 1.5X, 4X, 10X and 20X LOD at 0, 7, 14, 21, 28 and 35 days. These assays were employed in an ongoing prospective study examining the prevalence of MG in symptomatic and asymptomatic men and women. Positives were sequenced to determine mutation rates in the 23S rRNA gene conferring macrolide resistance.
Results The pdhD and 16S assays had LODs of 1324 and 1536 copies/ml, respectively. All inclusivity/exclusivity testing performed as expected. Detection in urine and vaginal matrix at 4°C was 100% for both assays. Detection in urine at 4°C was 100% for both assays while detection in urine at 25°C was 100% at 28 days, but was 90% at 35 days. For symptomatic men, the prevalence was 19% (4/21) and 14.3% (3/21) for the pdhD and 16S rRNA assays respectively, and was 7.14% (1/15) in symptomatic women for both assays. There were no MG detections in asymptomatic subjects. Of the positives, 100% (5/5) were determined to be 23S mutants.
Conclusion Both assays had reasonable LODs and expected results for inclusivity/exclusivity testing. For stability testing, results were as expected up to 35 days, where a loss of positivity was observed for urine samples. We observed a high prevalence of MG in symptomatic men and women, as well as a high percentage of 23S mutants conferring macrolide resistance.
Disclosure No significant relationships.

P621 PREVALENCE OF *MYCOPLASMA GENITALIUM* INFECTION, ANTIMICROBIAL RESISTANCE, AND SYMPTOM RESOLUTION FOLLOWING TREATMENT

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Background *Mycoplasma genitalium* (MG) is an emerging cause of urethritis. Although an FDA-approved MG diagnostic test is now available in the U.S., syndromic management of urethritis remains widespread. Little is known about the geographic distribution of MG resistance in the U.S. and associated clinical outcomes. We evaluated the frequency of MG among men with urethritis, antimicrobial susceptibility of MG, and post-treatment symptom persistence.
Methods We enrolled men presenting with urethritis symptoms to 6 U.S. STD clinics during June 2017–July 2018. Participants with urethritis confirmed on stained urethral smear were eligible for a follow-up phone call 14–17 days post-enrollment and chart review. Urethral specimens were tested locally for *N. gonorrhoeae* and *C. trachomatis*. CDC tested specimens for MG and *T. vaginalis*. MG resistance mutations were detected by targeted amplification/Sanger sequencing of 23S rRNA loci (macrolide resistance mutations [MRM]) and *parC* and *gyrA* (quinolone resistance mutations).
Results Among 914 participants with evaluable MG results, MG was detected in 28.7% (95% CI 23.8–33.6). Men with MG were more often black (79.8% vs 66%), <30 years (72.9% vs 56.2%), and reported only female partners (83.7% vs 74.2%) than men without MG. Among MG+ participants, MRM was detected in 62.2% (range 53%–72.3%), *parC* mutations in 11.5% (range 6.6–18.4%), and *gyrA* in 0%. Among 763 participants with follow-up, 19.8% reported symptom persistence, without clinically meaningful difference by MG status. Among MG participants treated with azithromycin, those with MRM more often reported persistent symptoms (35.1%) and were more likely to return to clinic within 45 days than those without MRM.
Conclusion MG was common among men with urethritis and MRM prevalence high. Persistent symptoms were frequent among men with and without MG. Many participants with macrolide-resistant MG experienced symptom persistence and returned to clinic for evaluation.